REMARKS

The foregoing amendment amends Claims 1, 4, 6, and 9 and cancels Claims 3, 10, 31, and 32. Now in the application are Claims 1, 2, 3-9 and 11-30, of which Claims 1, 9, 18, and 30 are independent. No new matter has been added and no new issues are raised. Thus, no further search is required. The following comments address all stated grounds for rejection and place the presently pending claims, as identified above, in condition for allowance.

Claim Amendments

Claim 1 is amended to include the subject matter of original Claim 3. Claims 4 and 6 are amended to correct claim dependency issues introduced by the cancellation of original Claim 3. Claim 9 is amended to include the original subject matter of Claim 10. Accordingly, Applicants understand that any further rejection of Claims 1, 2, 4-9, and 11-30 based on new art is to be non-final.

Claim Rejections under 35 U.S.C. § 102

Claims 1-32 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,324,165 of Fan, *et al.* (hereinafter "Fan"). For the ease of the discussion below each related claim set is discussed separately in view of the rejection under Fan.

I. Rejection of Claims 1-8 under 35 U.S.C. § 102(e):

Claims 1-8 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Fan. Applicants respectfully traverse this rejection and contend that Fan does not anticipate Claims 1, 2, and 4-8, as amended.

With respect to the rejection of Claim 3, Applicants consider this rejection moot for Claim 3 is cancelled by the above amendments.

Claims 2 and 4-8 depend directly or indirectly upon amended Claim 1, and therefore incorporate the novel features of amended Claim 1.

Amended Claim 1 is directed to a buffer element for a communication network. The buffer element includes a first buffer memory having a first queue depth and a second buffer

memory having a second queue depth. The buffer element further includes a buffer manager coupled to the first buffer memory and the second buffer memory.

The first buffer memory of the buffer element stores communication units corresponding to a first quality of service level. The second buffer memory of the buffer element stores communication units corresponding to a second quality of service level. The buffer manager selectively stores communication units in the first buffer and the second buffer based on a corresponding quality of service level of the communication unit and retrieves communication units from the first buffer memory and the second buffer memory. Furthermore, the buffer manager is configured to include a queue depth adjuster to adjust at least one of the first queue depth of the first buffer memory or the second queue depth of the second buffer memory. The Fan reference does not anticipate amended Claim 1.

A benefit of a buffer element according to amended Claim 1 is the ability of the buffer manager to adjust the queue depth of the first buffer memory and a second buffer memory to adjust to an increase or decrease the number of units of network traffic stored or held by the first buffer memory and the second buffer memory to minimize a cell loss rate (CLR) and minimize a mean cell transfer delay (CTD) of a network device. With the ability to adjust the queue depth of selected buffer memory elements to accommodate traffic patterns of selected classes of network traffic it is possible to effectively avoid the loss or dropping of network traffic associated with selected class of service.

The Fan reference does not anticipate the subject matter of amended Claim 1 and Claims 2-8. The Fan reference is directed to a dynamic rate scheduler for use in a large capacity multi-class core ATM switch. The dynamic rate control scheduling disclosed in the Fan reference rate controls network traffic flows within the multi-class core ATM switch according to congestion information observed at bottleneck points within the switch. More specifically, each network traffic flow within the switch is guaranteed a minimum service rate plus a dynamic rate component which distributes any unused bandwidth in within a fair manner. The Fan reference does not disclose adjusting queue depths of memory elements to accommodate a rate or volume change in a class of network traffic to avoid or minimize a cell loss rate and cell transfer delay rate.

In contrast to the Fan reference, amended Claim 1 recites a buffer element having a buffer manager configured to include a queue depth adjuster to adjust at least one of a first queue

depth of a first buffer memory or a second queue depth of a second buffer memory. Nowhere does the Fan reference disclose such a buffer manager. By contrast, the Fan reference discloses the dynamic rate control scheduling relies on two feedback mechanisms to regulate overflow of the output buffers in the core ATM switch. The Fan reference further indicates the two feedback mechanisms are necessary because the output buffers in the core ATM switch module are small, and thus can quickly overflow.

The two feedback mechanisms are as follows. The first mechanism provides a closed loop feedback control that matches the bottleneck rate and keeps utilization high while keeping the queues small at the output buffer ports. The second feedback mechanism is considered a threshold based rate feedback mechanism activated when the output port buffers of the core switch module have the potential to overflow in spite of the first control mechanism. The first control mechanism is achieved by dynamic rate control scheduling input modules of the ATM switch. The second control mechanism is built into the core switch module and is regarded as a safety mechanism to quickly control short term congestion at the output port bottleneck. The Fan reference goes on to disclose that preferably there are three thresholds on the output port buffers which generate control feedback signals. The first being a stop RT, the second being a shape RT, and the third a stop NRT. Accordingly, depending on the makeup of the threshold indicator and selected control bits the action taken at the input modules of the core switch is one of the following; 1) send real-time traffic and stop non-real-time traffic; 2) send real-time traffic and stop non-real-time traffic; 3) shape real-time traffic and send non-real-time traffic; and 4) stop real-time traffic stop non-real-time traffic. *See* column 7, line 49 to column 8, line 67 of Fan.

Accordingly, the Fan reference discloses a feedback mechanism in conjunction with a dynamic rate control scheduler to schedule the transfer of received network traffic on input buffers of a core switch to output ports of the same switch to avoid congestion on the buffers of the output ports. The Fan reference does not disclose a buffer manager configured to include a queue depth adjuster to adjust at least one of a first queue depth of a first buffer memory or a second queue depth of a second buffer memory.

Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of Claims 1, 2, and 4-8, as amended, under 35 U.S.C. § 102(e).

II. Rejection of Claims 9-17 under 35 U.S.C. § 102(e):

Claims 9-17 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Fan. Applicants respectfully traverse these rejections in view of the above amendments and below arguments and further contend that Fan does not anticipate Claims 9-17 as amended.

With regard to the rejection of Claim 10, Applicants contend this rejection is moot in view of the cancellation of Claim 10 by the foregoing amendment.

Claims 11-17 depend directly or indirectly upon amended Claim 9, and therefore incorporate the patentable subject matter of amended Claim 9.

Amended Claim 9 is directed to a switch for a communication network. The switch includes a plurality of ports, a first memory buffer having a first queue depth, a second buffer memory having a second queue depth and a buffer manager. The buffer manager is coupled to the first buffer memory and the second buffer memory and is configured to include a buffer manager to manage a depth of at least one of the first queue depth or the second queue depth. Applicants respectfully contend the Fan reference does not anticipate amended Claim 9.

For at least these reasons, the Fan reference does not disclose a buffer manager configured to include a queue depth management mechanism to manage a depth of at least one of a first queue depth or a second queue depth. Accordingly, the Fan reference does not anticipate amended Claim 9 and Claims 11-17. Hence, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of Claims 9 and 11-17 as amended, under 35 U.S.C. § 102(e).

III. Rejection of Claims 18-29 under 35 U.S.C. § 102(e):

Claims 18-29 stand rejected under 35 U.S.C. § 102(e) as being anticipated by the Fan reference. Applicants respectfully traverse this rejection based on the argument presented below and further contend that Fan does not anticipate Claims 18-29.

Claims 19-29 depend directly of indirectly upon independent Claim 18, and therefore incorporate the patentable features of Claim 18.

Claim 18 is directed to a method buffering communication units in a communication network. The method includes, amongst other steps, a step of assigning a queue depth for each

of a plurality of queues. Each queue being designated to store communication units of a predetermined quality of service level. Applicants respectfully contend the Fan reference does not anticipate Claims 18-29.

For at least these reasons, the Fan reference does not disclose a method buffering communication units in a communication network that includes a step of assigning a queue depth for each of the plurality of queues. Accordingly, the Fan reference fails to anticipate Claims 18-29. Thus, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of Claims 18-29 under 35 U.S.C. § 102(e).

IV. Rejection of Claim 30 under35 U.S.C. § 102(e):

Claim 30 stands rejected under 35 U.S.C. § 102(e) as being anticipated by the Fan reference. Applicants respectfully traverse this rejection and contend that Fan does not anticipate Claim 30.

Claim 30 is directed to a method of selecting a communication unit for transmission in a communication network that provides a plurality of quality of service levels. The communication unit being selected from a number of communication units stored in a buffer. The buffer includes a number of queues. Each queue corresponds to one of the quality of service levels. The method includes the steps of identifying the queue with the highest corresponding quality of service level which is not empty and selecting the communication unit from the identified queue. The Fan reference does not anticipate Claim 30.

In contrast to the Fan reference, Claim 30 recites steps of identifying the queue with the highest corresponding quality of service level which is not empty and selecting the communication unit from the identified queue. The scheduler mechanism of the Fan reference insures that each queue flow receives its minimum guaranteed rate and hence, the QoS is guaranteed for all connections within the flow. Thus, the effect of the method disclosed in Claim 30 is to transmit cells from the highest level queue holding cells until empty. The scheduler mechanism of the Fan reference is essentially a waited fair queueing mechanism that recognizes when a particular queue is not fully utilizing its allocated bandwidth and portions at capacity to the other queues on a proportionate basis.

Accordingly, Applicants respectfully contend the Fan reference does not anticipate Claim 30. Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw the rejection of Claim 30 under 35 U.S.C. § 102(e).

V. Rejection of Claims 31 and 32 under 35 U.S.C. § 102(e):

Claims 31 and 32 stand rejected under 35 U.S.C. § 102(e) as being anticipated by the Fan reference. Applicants respectfully contend that in view of the cancellation of Claims 31 and 32 their rejection under 35 U.S.C. § 102(e) is moot. Accordingly, Applicants respectfully request the Examiner to withdraw the rejection of Claims 31 and 32 under 35 U.S.C. § 102(e).

CONCLUSION

In view of the amendments and remarks set forth above, Applicants contend that the presently pending claims in this application are patentable and in condition for allowance. Therefore, Applicants respectfully urge the Examiner to pass the claims to allowance.

If the Examiner deems there are any remaining issues, we invite the Examiner to call the Applicants' Attorney at the telephone number identified below.

Respectfully submitted,

LAHIVE & COCKFIELD, LLP

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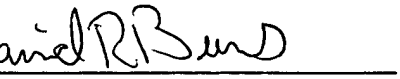

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